

Notice of Allowability

Application No.

10/783,021

Examiner

Cam N. Nguyen

Applicant(s)

KOBAYASHI ET AL.

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an amendment/response filed on 6/20/06, 9/14/06, & a telephone call on 12/11/06.
2. ☒ The allowed claim(s) is/are 1-6 & 8-9 (which have been renumbered 1-8).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 12/11/06.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

CAM N. NGUYEN
PRIMARY EXAMINER

AU-1754

12/11/06

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney/Agent **Mr. Arthur R. Crawford** on **December 11, 2006**.

The application has been amended as follows:

In the Claim

Claim 1 has been amended as follows.

--1. (Currently Amended) A catalyst for decomposition of hydrocarbons, comprising:
(a) porous oxide particles containing magnesium and aluminum; and
(b) fine metallic nickel particles which are present in the vicinity of surface of the respective porous oxide particles, and have an average particle diameter of 1 to 10 nm,
wherein said catalyst having a nickel content of 0.15 to 12% by weight based on the weight of the catalyst, ~~and~~ a molar ratio of nickel to a sum of magnesium, nickel and aluminum of 0.001 to 0.12 ~~in which, and~~ a molar ratio of magnesium to aluminum (Mg:A1) is 4:1 to 1.5:1.—

Claim 3, line 3, -- a -- has been inserted after "comprising".

Claim 3, line 5, "respective" has been deleted.

Claim 3, line 5, "obtained" has been deleted and replaced thereof with --resultant--.

Claim 4, line 4, line 4, -- a -- has been inserted after "comprising".

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Claim 4, line 6, "respective" has been deleted.

Claim 4, line 7, "obtained" has been deleted and replaced thereof with --resultant--.

Claim 6, line 4, "with each other" has been deleted and replaced thereof with --together to form a mixed solution--.

Claim 6, line 14, "respective" has been deleted.

Claim 8 has been amended as follows.

--8. (Currently Amended) A catalyst for decomposition of hydrocarbons, comprising:

(a) porous oxide particles containing magnesium and aluminum; ; and

(b) fine metallic nickel particles which are present in the vicinity of surface of the ~~respective~~ porous oxide particles, and substantially absent from a central portion of the porous oxide particles and have an average particle diameter of 1 to 10 nm,

wherein said catalyst having a nickel content of 0.15 to 12% by weight based on the weight of the catalyst, ~~and~~ a molar ratio of nickel to a sum of magnesium, nickel and aluminum of 0.001 to 0.12 ~~in which,~~ and a molar ratio of magnesium to aluminum (Mg:A1) is 4:1 to 1.5:1, wherein the catalyst is capable of maintaining a methane conversion percentage at least 90% at a reaction temperature of 600°C to 900°C, a molar ratio of steam to carbon (S/C) of 1.3 to 3.5 and a space velocity (GHSV) of 1,500 to 600,000 ~~h-1~~ h⁻¹.—

2. Claim 6 was previously withdrawn. It has now been rejoined with the elected claims since the product claims are now found allowable.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

The prior art does not disclose or fairly suggest a catalyst comprising porous oxide particles containing magnesium and aluminum, and fine nickel particles having the claimed nickel particles average particle diameter, nickel content, *and in combination with* the claimed molar ratio of nickel to the sum of magnesium, nickel and aluminum of 0.001 to 0.12, and a molar ratio of magnesium to aluminum (Mg:Al) of 4:1 to 1.5:1 (as recited in claims 1 and 8).

There is no motivation to combine the teachings of the references together.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Claims 1-6 & 8-9 are pending. Claims 1-6 & 8-9 are allowed.

Contacts

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cam N Nguyen, whose telephone number is 571-272-1357. The examiner can normally be reached on M-F, 9:00 AM - 6:30 PM, at alternative work site.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Cam N. Nguyen/

Nguyen/cnn

Primary Examiner

December 11, 2006

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